

## CLAIMS

What is claimed is:

1. A system that facilitates a user interface, comprising:  
a gesture that is interpretable as a user command to control a computer system; and  
a 3-D imaging component that captures the gesture in the form of a gesture image, processes the gesture image, and interprets the gesture image to execute the user command for control of the computer system.
2. The system of claim 1, the gesture is formed using at least one hand.
3. The system of claim 1, the gesture is formed using a head movement.
4. The system of claim 1, further comprising a remote control device the orientation of which is associated with the user command.
5. The system of claim 1, further comprising a voice communication system that receive voice signals that are used singly or in combination with the gesture to control the computer system.
6. The system of claim 1, the computer system initiates a confirmation request signal in response to receiving the gesture.
7. The system of claim 1, the computer system uses the 3-D imaging system to determine when an operator is looking in the direction thereof.
8. The system of claim 1, the 3-D imaging component is distributed across the computer system and at least one other computer system.

9. The system of claim 1, the gesture comprises gesture characteristics detectable by the 3-D imaging component, which gesture characteristics include at least one of hand movement, finger count, finger orientation, hand orientation, and hand rotation.

10. A computer readable medium having stored thereon computer executable instructions for carrying out the system of claim 1.

11. A system that facilitates a user interface in a medical environment, comprising:

- a gesture that is interpretable as a user command to control an object of a computer system;

- a 3-D imaging component that captures the gesture in the form of a gesture image, processes the gesture image, and interprets the gesture image to execute the user command for control of the computer system; and

- a wireless control device the orientation of which is used in combination with the gesture to control the computer system.

12. The system of claim 11, the wireless control device includes a sensor that outputs at least one of a single axis signal and tri-axial signal.

13. The system of claim 11, the object comprises at least one of hardware and software of the control system.

14. The system of claim 11, the gesture is used to facilitate rotation of data presented by the computer system about at least one of an axis and a vertex of the data.

15. The system of claim 11, the gesture facilitates the manipulation of image data presented by the computer system, which manipulation of data includes at least one axis translation, zoom control, and paging through multiple images of the image data.

16. The system of claim 11, the gesture includes the use of both hands of an operator to cause execution of the user command.

17. The system of claim 11, the gesture is associated with a unique user.

18. The system of claim 11, the wireless control device is used to determine when line of sight of an operator interacts with computer system for control of the object.

19. A method of controlling a computer system using a gesture, comprising:  
capturing one aspect of the gesture in the form of a 3-D gesture image;  
processing the 3-D gesture image to determine an associated user  
command; and  
executing the user command to effect manipulation of an object of the  
computer system.

20. The method of claim 19, further comprising processing subsequent gesture images to interpret the gesture for manipulation of the object.

21. The method of claim 19, further comprising presenting the gesture in the form of at least one of a hand manipulation, a gaze signal, and a vocalization, to control the object.

22. The method of claim 19, further comprising controlling the object, which is video data, by presenting at least one gesture that facilitates at least one of starting, stopping, freezing, and looping the video data when the video data is being presented by the computer system.

23. The method of claim 19, the video data is related to at least one of echocardiography data, computed tomography data, and magnetic resonant imaging data.

24. The method of claim 19, further comprising controlling the object, which is 3-D image data, by presenting one or more gestures that facilitate at least one of rotation about an axis that corresponds to smooth rotation of a user's hand, rotation about a vertex of the 3-D image data, and stepped rotation.

25. The method of claim 19, further comprising controlling the object, which object is associated with at least one of lighting, display intensity, and volume control of an audio signal.

26. The method of claim 19, further comprising characterizing the gesture according to finger usage and a hand pose.

27. The method of claim 19, further comprising identifying the gesture with a user *via* a radio frequency tag.

28. The method of claim 27, the tag is attached to a glove worn by the user.

29. The method of claim 19, further comprising presenting a sequence of gestures to effect control of the object.

30. A method of controlling a computer system in an operating room environment, comprising:

calibrating the computer system according to a user profile of individualized gesture data by presenting associated gestures using at least one or more body motions;

mapping the gesture data to at least one user command that is executable by the computer system;

invoking the user profile according to a unique signal;

presenting the gestures to a 3-D imaging system for capture and processing;

interpreting 3-D renderings of the gestures to retrieve the associated user commands; and

executing the user commands to effect manipulation of an object of the computer system.

31. The method of claim 30, further comprising automatically including a second user profile of individualized gestures data with the user profile of individualized gesture data with when the associated second user is detected within the operating room environment.

32. The method of claim 30, further comprising automatically learning gesture characteristics of a user associated with the user profile, and updating the user profile with the learned gesture characteristics.

33. A computer-readable medium having computer-executable instructions for performing a method of controlling a computer using gestures, the method comprising:

- receiving gesture calibration data in the form of 3-D images of the gestures;
- mapping the gesture calibration data to at least one user command that is executable by the computer system;
- associating the mapped gesture calibration data with a user profile of a user;
- invoking the user profile according to a unique signal received from the user;
- processing subsequent 3-D images of the gestures received via a camera system;
- interpreting the subsequent 3-D images of the gestures to retrieve the associated user commands; and
- executing the user commands to effect manipulation of a hardware or software object of the computer system.

34. The method of claim 33, further comprising presenting and manipulating 3-D images of system data in response to presenting the gestures.

35. The method of claim 33, further comprising defining a volume of space over a patient on an operating table, and processing one or more of the gestures presented within the volume of space to effect control of the computer before, during, or after an operating procedure on the patient.

36. A system for controlling a computer during a medical procedure using one or more hand gestures of a medical person, comprising:

means for capturing a gesture presented by a medical person, in the form of a 3-D image;

means for processing the 3-D image of the gesture to allow recognition thereof;

means for returning a computer command associated with the recognized gesture; and

means for executing the computer command to facilitate manipulation of medical information presented on a display to the medical person.

37. The system of claim 36, further comprising means for confirming use of the computer command with the recognized gesture.

38. The system of claim 36, the gesture includes means for generating an audio signal in the form of at least one of vocalizations and clicking.